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BISTABLE MEMBRANE VALVE

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application is the National Stage of International Application No. PCT/FR03/001870 filed June 18, 2003. This application also claims priority from French Patent Application No. 02.08064 filed June 28, 2002. The entire disclosures of the previous applications are hereby incorporated by reference to their entirety.

BACKGROUND

[0002] The present invention relates to valves and to the use of valves in inflation and deflation valves to inflate and deflate the tire of a motor vehicle wheel.

[0003] There exists valves that allow the remote inflation and deflation of vehicle tires (U.S. Patent No. 4,922,946 and French Patent Nos. 2,667,826 and 2,731,655). The single valves (of inflation and deflation valves) allow the passage of pressurized air to the tire when in one position, allow air contained in the tire to escape to the exterior when in a second position, and isolate the tire by closing off the air flow circuit when in a resting position.

[0004] To achieve this, a membrane is subjected to a spring and coupled with a single valve formed of a chamber and closing means. The closing means currently employed is that of a ball. This system has proved efficient in heavy vehicles.

SUMMARY

[0005] The drawback to this system lies in the fact that the internal pressure of the tire of light vehicles is much lower and the wheel spin rate is much greater than that of heavy vehicle tires. These different factors cause the inflation and deflation valves to malfunction, essentially because of the centrifugal forces applied to the ball or to the vertical accelerations to which the vehicle's wheels may be subjected.

[0006] The present invention thus overcomes, among other things, this problem by proposing a single valve that fulfils the same role but whose production costs are reduced and whose constituents will remain unaffected by those forces likely to generate malfunctions.

[0007] The present invention thus proposes the replacement of the single valve comprising a seat, a steel ball and a barrier grid for the ball, by a single valve constituted by a seat and a membrane having two stable positions.

[0008] The invention thus relates to a single valve that closes an inflation circuit and is composed of a seat and a semi-rigid membrane with one or several openings and which is structured to successively adopt two stable positions.